

International students in United States' medical schools: does the medical community know they exist?

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Background: Matriculation of international students to United States' (US) medical schools has not mirrored the remarkable influx of these students to other US institutions of higher education.

Methods: While these students' numbers are on the rise, the visibility for their unique issues remains largely ignored in the medical literature.

Results: These students are disadvantaged in the medical school admissions process due to financial and immigration-related concerns, and academic standards for admittance also continue to be significantly higher compared with their US-citizen peers. Furthermore, it is simply beyond the mission of many medical schools – both public and private – to support international students' education, especially since federal, state-allocated or institutional funds are limited and these institutions have a commitment to fulfill the healthcare education needs of qualified domestic candidates. In spite of these obstacles, a select group of international students do gain admission to US medical schools and, upon graduation, are credentialed equally as their US-citizen counterparts by the Accreditation Council for Graduate Medical Education (ACGME). However, owing to their foreign citizenship, these students have visa requirements for post-graduate training that may adversely impact their candidacy for residency placement.

Conclusion: By raising such issues, this article aims to increase the awareness of considerations pertinent to this unique population of medical students. The argument is also made to support continued recruitment of international students to US medical schools in spite of these impediments. In our experience, these students are not only qualified to tackle the rigors of a US medical education, but also enrich the cultural diversity of the medical student body. Moreover, these graduates could effectively complement the efforts to augment US physician workforce diversity while contributing to healthcare disparity eradication, minority health issues, and service in medically underserved areas.

Keywords: *international students; medical school admission; diversity; minority; recruitment*

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For the past two decades, United States' (US) institutions of higher education have welcomed the brightest students from all across the world. In its publication *Open Doors*, the Institute of International Education estimated that approximately 723,277 international students are currently pursuing undergraduate or graduate education in the US, a 32% increase since 2000. These numbers have grown consistently by about 1–15% every year (1). At this rate, the number of international students in US institutions might surpass 1 million by the year 2020. Matriculation of international students in US medical schools, however, has not matched this remarkable trend. In 2010, only 1,300 foreign citizens applied to US medical schools and only 171 matriculated. This 13% acceptance rate is much lower than that of their US

citizen counterparts, whose acceptance rate hovers around 42–44%. Nonetheless, international student matriculation has steadily risen from 82 per year in 2002 to 171 in 2010, a 108% increase, and approximately 1,309 international students now attend US medical schools (2). Despite this modest gain, international students have largely been ignored in the medical literature. This article provides much-needed visibility for the challenges and dilemmas, logistical issues, and unique considerations pertaining to US medical education for international students.

The unique barriers encountered by international students begin with the medical school admissions process. International students are disadvantaged from the outset because less than half of US medical schools

will entertain their applications (3). This practice is intricately linked to the single most significant hurdle for these students – funding and financial aid. Since most state-funded medical schools are mandated to serve the citizens and healthcare needs of the states in which they exist, nearly all refuse foreign applications. Put simply, it is beyond the mission of these institutions to divert state-allocated funds to educate international students. Many private medical schools are also reluctant to consider these applicants for financial reasons. Because foreign citizenship excludes these students from federal loan or grant programs, schools must rely on precious institutional funds to extend financial assistance. Compared to undergraduate institutions, medical schools have far less scholarship money available, a fact that has contributed to the exceedingly high average graduating debt for foreign and US citizens alike. There is intense competition for the limited number of available institutional loans and grants, and private loans typically charge exorbitant interest rates and require a credit-worthy US citizen-cosigner (4). Additionally, most medical schools that admit international students require that the students place in escrow 1–4 years' tuition fee. This amounts to anywhere from \$50,000 to \$250,000, making a US medical education virtually impossible for most applicants.

In addition to financial roadblocks, other barriers impede international students as they contemplate a US medical education. First, standards for admission are more rigorous for international applicants when compared with the general pool. Total Medical College Admission Test (MCAT) scores and cumulative, science, and non-science grade point averages (GPA) are significantly higher for matriculating international students compared with their US citizen peers (5) (Table 1). This suggests that international students must surpass the already lofty standards for US medical school admission, which might dissuade many from initiating applications for fear of probable failure. Also, one could hypothesize that cultural, social, and language-related

issues serve as potential barriers for these students, as they navigate the medical school terrain. Even though a vast majority of these students have completed significant portions of their premedical requirements in the US and consider themselves culturally ‘assimilated,’ they might feel socially isolated in the particularly demanding learning environment of medical school.

In 2010, 268 international students graduated from US medical schools and sought residency placement (2), a transition that creates another set of hurdles. While in medical school, international students fulfill the same curricular requirements and complete the same required examinations as their US citizen peers. Even the mechanics of the residency application process are the same: these students utilize the Electronic Residency Application Service (ERAS) and National Resident Matching Program (NRMP) just as their American counterparts do. However, their post-graduate visa requirements generate considerable uncertainty during the application cycle. Because of this uncertainty, some residency programs refrain from extending interviews based on foreign citizenship alone. Even if interviews are offered, citizenship status may hamper chances at highly competitive specialties and programs. As a result, the application process can become overwhelmingly stressful for these students. A major part of the solution lies in increased education of the advisory community about international students’ existence, their distinctive characteristics, and unique requirements for residency.

It is clear that the international student’s road through US medical training is fraught with impediments. Because thousands of qualified US citizens are denied admission every year, one might logically ask if medical schools should even care about international applicants. Here are a few reasons why we believe they should. As evidenced by their MCAT scores and GPAs, these students are academically qualified to tackle the rigors of a US medical school curriculum. Furthermore, their presence in the US medical system is particularly relevant in light of the pressing needs to increase

Table 1. Comparison of mean total MCAT score, total GPA, science GPA, and non-science GPA between international student and US citizen matriculants to US medical schools based on 2010 AAMC data (5)

Category	International citizen matriculants ^a	US citizen matriculants	P value ^b
Number of matriculants	163	18227	N/A
Mean total MCAT score \pm SD ^c	32.8 \pm 2.9	30.8 \pm 4.1	<0.001
Mean total GPA \pm SD	3.77 \pm 0.13	3.66 \pm 0.26	<0.001
Mean science GPA \pm SD	3.76 \pm 0.16	3.60 \pm 0.32	<0.001
Mean non-science GPA \pm SD	3.78 \pm 0.16	3.74 \pm 0.25	0.04

^aIncludes Canadian matriculants.

^bStandard statistical tools used to calculate weighted means and SD; unpaired t-test was used to compare means.

^cSD, standard deviation.

physician workforce diversity to better mirror the US' burgeoning domestic and international diversity (6). International students represent a highly diverse population that could significantly impact healthcare disparities, minority health, and the medically underserved once they become practicing physicians. Perhaps more importantly, they add diversity to the educational environment of our medical schools, with unique and sometimes challenging life experiences that enrich and expand the sensibilities of their peers. In our experience, international students have provided valuable cultural bridges that reinforce the professional ideal of compassion and respect for the dignity of all human beings.

The proposal to increase diversity in the US physician workforce by recruiting foreign citizens in US medical schools raises a peculiar ethical dilemma, one that has been encountered previously in the international medical graduate (IMG) literature (7). Is it ethical to incentivize medical education for international students who will ultimately serve US healthcare needs, while drawing them away from the needs of their own countries? The reflexive answer is 'no.' One might argue that greater strides need to be made in recruiting domestic underrepresented minority groups to address these voids in physician diversity before 'looking abroad.' Furthermore, some argue that the system is already saturated with foreign-educated physicians who flock to US soil for post-graduate training. IMGs constitute 25.3% of all physicians in the US, causing their native countries to bemoan the drain that the US imposes on their physician populations (7). On the other hand, one could argue that it is not the responsibility of US medical schools seeking the very best trainees irrespective of national origin, to prevent this 'brain drain.' In addition, even if foreign-born US-trained physicians remain in the US to practice, they are able to return precious medical and financial resources to needy establishments in their home countries.

These issues are challenging, but in the meantime, a growing number of international students require accurate, logical and consistent advice from their mentors

and a greater number of 'open doors' for the transformative opportunities they seek.

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